

1) PARTIAL MECHANICAL DEMOLITION PLAN

MECHANICAL DEMOLITION KEY NOTES:

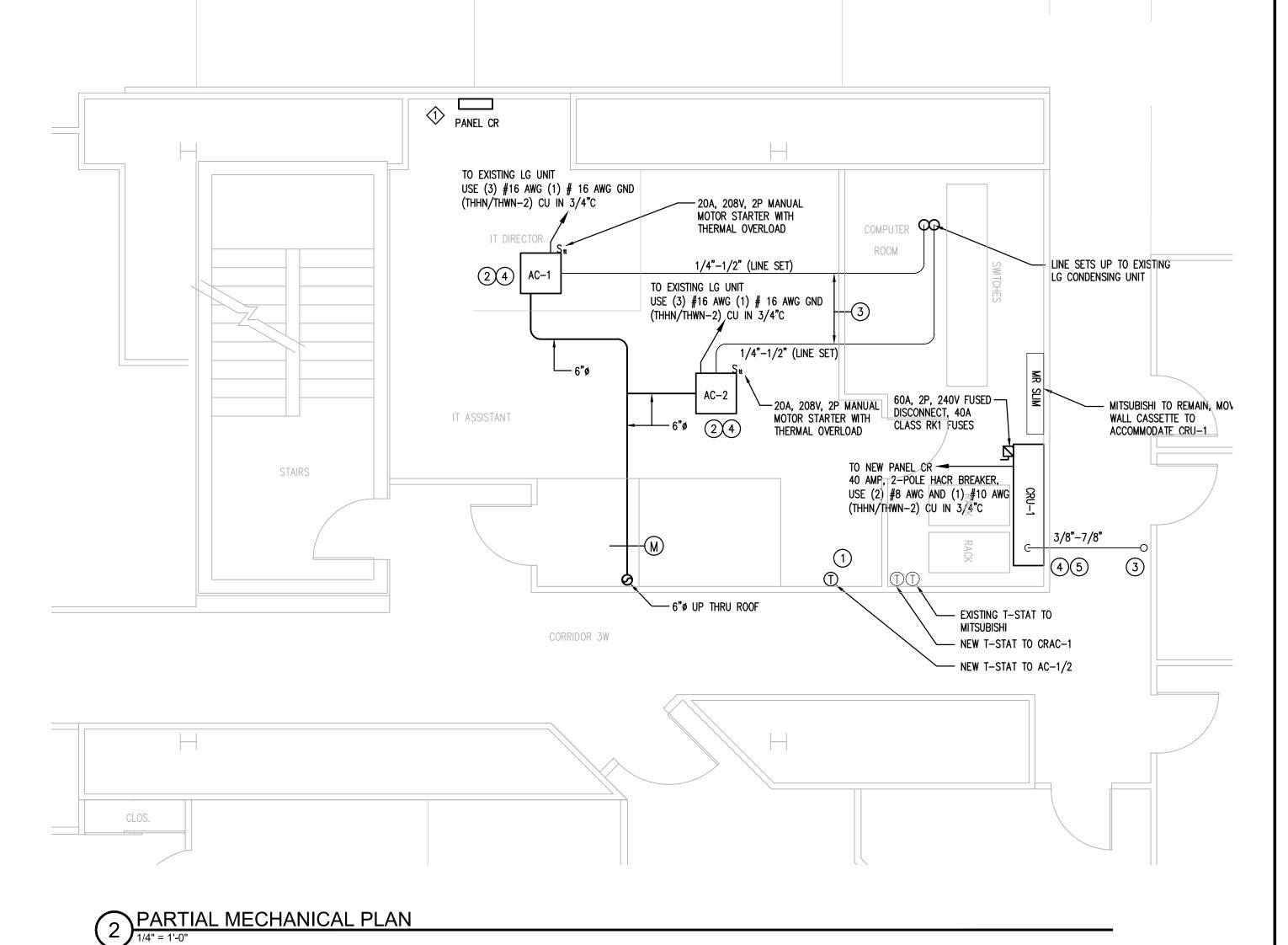
- 1 REMOVE WALL CASSETTES, REFRIGERANT LINES, AND CONDENSATE.
- 2 REMOVE T-STAT FOR LG WALL MOUNTED CASSETTES.

MECHANICAL DEMOLITION GENERAL NOTES:

- 1. REMOVE ALL REGISTERS, GRILLES, AND DIFFUSERS.
- 2. REMOVE DUCTWORK
- 3. REPLACE CEILING TILES TO MATCH EXISTING.

ELECTRICAL DEMOLITION NOTES:

1. ELECTRICAL CONTRACTOR SHALL REMOVE EXISTING WALL CASSETTE DISCONNECT SWITCHES AND ASSOCIATED WIRING BACK TO SOURCE.



MECHANICAL KEY NOTES:

- (1) NEW WALL MOUNTED THERMOSTAT SHALL CONTROL BOTH AC UNITS.
- 2) NEW AC UNITS SHALL BE PROVIDED WORTH TWINNING KIT AND OUTDOOR AIR OPENING KIT, MODEL PTVK-430.
- 3 PROVIDE NEW PRE-INSULATED LINE SETS. ROUTE TO BE DETERMINED BASED ON ACTUAL CONDITIONS.
- 4) ROUTE CONDENSATE AND STEAM DRAIN (AS APPLICABLE) TO EXISTING CONDENSATE PUMP OR DRAIN. PROVIDE SECONDARY PAN FOR CONDENSATE PUMP TO PROTECT AGAINST LEAKAGE.
- (5) ROUTE 1/2" DOMESTIC WATER FEED LINE FROM NEAREST DOMESTIC WATER LINE. PROVIDE SHUT-OFF VALVES AT CONNECTION TO MAIN AND CONNECTION TO UNIT. INSTALLATION OF PIPING AND ACCESSORIES SHALL BE PER MANUFACTURERS RECOMMENDATION AND INDUSTRY STANDARDS.

ELECTRICAL KEY NOTES:

ELECTRICAL PANEL CR SHALL BE REPLACED WITH 200 AMP, 208V, 3P, 4W PANEL. EXISTING 100 AMP PANEL TO BE REPLACED BY OWNER, ALL EXISTING BREAKERS AND FEEDERS TO BE RECONNECTED BY OWNER. UPGRADE TO EXISTING PANELBOARD FEEDER SHALL BE BY OWNER. NO NEW EQUIPMENT SHALL BE POWERED BEFORE THIS WORK IS COMPLETED.

GENERAL ELECTRICAL NOTES:

- 1. NEW CIRCUIT BREAKERS SHALL BE BY CONTRACTOR. MATCH MANUFACTURER AND AIC RATING OF NEW 200A PANELBOARD; COORDINATE EXACT REQUIREMENTS WITH OWNER.
- 2. RACEWAY CONNECTIONS TO MOTORS AND OTHER VIBRATING EQUIPMENT SHALL BE WITH FLEXIBLE METAL CONDUITS (INDOORS) AND LIQUID TIGHT FLEXIBLE METAL CONDUITS
- 3. CONTRACTOR SHALL UPDATE PANELBOARD CIRCUIT CARD WITH NEW CIRCUIT INFORMATION; CIRCUIT CARD SHALL BE TYPED.
- 4. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED CUTTING, CORING, AND PATCHING OF WALLS AND CEILINGS.
- 5. ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE-RATED SEALANT FOR ALL PENETRATIONS THROUGH FIRE-RATED WALLS AND CEILINGS AS REQUIRED.
- DISCONNECT SWITCHES SHALL BE RATED HEAVY-DUTY. INSTALL DISCONNECT SWITCHES TO ACHIEVE NEC REQUIRED WORKING CLEARANCES.
- 7. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NEC 2011, AND STATE/LOCAL AMENDMENTS.
- 8. COORDINATE PENETRATIONS THROUGH ROOF WITH MECHANICAL CONTRACTOR AND ROOF MANUFACTURER.

Companies

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R AVENUE HVAC ROOM | RVER

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AS NOTED 16D3039 Project No. 03/11/2016 M16D3039-101

MECHANICAL PLANS

Sheet No.

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|------|--------------|-----------|-----|----------------|-----------------------|--------------|-----------------|---------------------|--------------|-----------------------|------|--------|-------|--------|-------|--------------|
| | | | | FAN | со | OLING [| DATA | HEATING | G DATA | CFM | ELEC | TRICAL | DATA | LINE | SET | |
| MARK | MANUFACTURER | MODEL | CFM | ESP (IN WC) | EAT (DB/WB (°F) | TOTAL MBH | SENSIBLE MBH | EAT (DB) (°F) | TOTAL MBH | OA (SUMMER/WINTER) | AMPS | VOLTS | PHASE | LIQUID | VAPOR | REMARKS |
| AC-1 | LG | LMCN185HV | 459 | _ | 76/63 | 18 | 13.8 | 62 | 20.8 | 40 CFM /40 CFM | 0.25 | 208 | 1 | 1/4" | 1/2" | 1234 |
| AC-2 | LG | LMCN185HV | 459 | - | 76/63 | 18 | 13.8 | 62 | 20.8 | 40 CFM /40 CFM | 0.25 | 208 | 1 | 1/4" | 1/2" | (1)(2)(3)(4) |

- 1) PROVIDE LG PROGRAMABLE THERMOSTAT MODEL PREMTB10U, ONE T-STAT SHALL SERVE BOTH AC-1 AND AC-2
- 2) PROVIDE DRY CONTRACT UNIT TO OPEN FRESH AIR DAMPER, MODEL PQDSB1
- (3) PROVIDE VENTILATION KIT FOR FRESH AIR INTAKE, MODEL PTVK430
- (4) PROVIDE TWINNING KIT FROM MANUFACTURER, AC-1 SHALL BE THE MASTER UNIT, AC-2 SHALL BE SLAVED

| | | | C | OMPL | JTEF | ROC | MC | AIR-CC | NDI | TIONII | NG I | JNIT | SCH | EDULE | | | | | |
|-------|--------------|---------|------|----------------|------|-----------------------|--------------|-----------------|--------|---------|------|--------|-------|----------------------|------|-----|---------|-------|---------|
| | | | | FAN | | (| COOLING | COIL | LINI | E SET | RE | HEAT | | HUMIDIFIER | | | | | |
| MARK | MANUFACTURER | MODEL | CFM | ESP (IN WC) | HP | EAT (DB/WB (*F) | TOTAL MBH | SENSIBLE MBH | LIQUID | SUCTION | KW | STAGES | TYPE | CAPACITY (LBS/HR) | MCA | MOP | VOLTS | PHASE | REMARKS |
| CRU-1 | LIEBERT | DME027E | 1050 | - | .2 | 75/61 | 22.8 | 22.7 | 3/8" | 7/8" | 5.3 | _ | STEAM | 3 | 29.3 | 40 | 208/230 | 1 | 1234 |

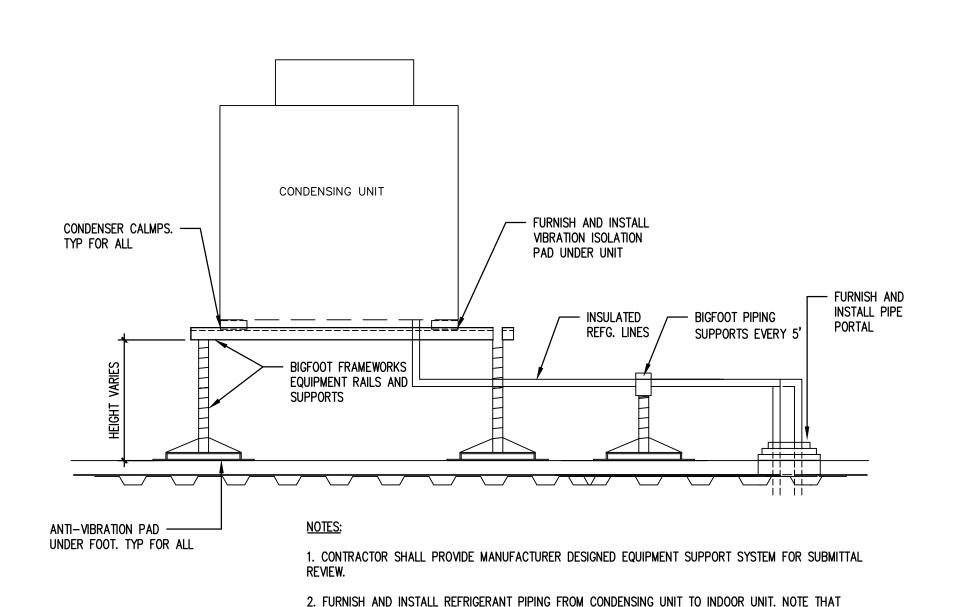
- (1) PROVIDE WALL BOX SYSTEM CONTROL. MOUNT WALL BOX AS SHOWN ON DRAWINGS NO MORE THAN 48" ABOVE FINISHED FLOOR.
- (2) CONNECT CONDENSATE DRAIN TO EXISTING CONDENSATE PUMP, RELOCATE CONDENSATE PUMP AND RECONNECT AS NEEDED
- (3) PROVIDE WEB/ MODEM CARD TO ALLOW ALARMS TO SEND ALERTS VIA EMAIL AND/OR SMS
- (4) POWER FROM EXISTING PANEL CR, SERVICE TO PANEL SHALL BE UPGRADED TO 200 AMP BY OWNER PRIOR TO WIRING ANY NEW EQUIPMENT

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|------|--------------|---------|--------------------------------|--------------------------|----------------------------|------------|-----------|---------|-------|--------|-----------|
| | | | | | | AIR-COOLED | CONDENSER | | | | |
| MARK | MANUFACTURER | MODEL | AMBIENT TEMPERATURE (°F) | NUMBER OF CIRCUITS | HEAT REJECTION (MBH) | MCA | МОР | VOLTS | PHASE | SERVES | REMARKS |
| C-1 | LIEBERT | PFH027A | 95 | 1 | 24.5 | 13.4 | 25 | 208/230 | 1 | CRU-1 | (1)(2)(3) |

- (1) LOCATE AND MOUNT UNIT ABOVE THE HIGHEST EXPECTED SNOW FALL, MINIMUM 12 INCHES ABOVE ROOF
- (2) PROVIDE 5 YEAR WARRANTY ON ALL COMPONENTS, INCLUDING PARTS AND LABOR
- (3) POWER FROM EXISTING PANEL CR, SERVICE TO PANEL SHALL BE UPGRADED TO 200 AMP BY OWNER PRIOR TO WIRING ANY NEW EQUIPMENT

| SINGLE LINE | | |
|---|---|---------------|
| | DESCRIPTION | DOUBLE LINE |
| | EXISTING PIPE | |
| | NEW PIPE | |
| ///////////////////////////////////// | REMOVE EXISTING PIPING & EQUIPMENT | |
| | 90° ELBOW DOWN | 8 10 |
| | 90° ELBOW UP | 8 10 |
| | ROUND RADIUS ELBOW | 8 |
| ~ \ | 45° ELBOW | 8 |
| | 90° ELBOW DOWN | |
| $\overline{\mathbb{X}}$ | 90° ELBOW UP | |
| | RECTANGULAR RADIUS ELBOW | |
| ~ | RECTANGULAR ELBOW WITH TURNING VANES | 7 1,77 |
| <u> </u> | BRANCH TAKE-OFF WITH RADIUS HEEL & EXTRACTOR | |
| \ \ \ | REDUCER, ECCENTRIC | |
| \longrightarrow | REDUCER, CONCENTRIC | |
| × | NEW SUPPLY AIR DIFFUSER | |
| | EXISTING SUPPLY AIR GRILLE | |
| | NEW RETURN GRILLE | |
| | NEW EXHAUST GRILLE | |
| | SUPPLY DUCT | |
| | RETURN DUCT | |
| | EXHAUST DUCT | |
| Ø | ROUND DUCT SIZE | |
| | FLEXIBLE DUCT CONNECTION | |
| | EXISTING DUCT | <u> </u> |
| | NEW DUCT | * |
| ///////////////////////////////////// | REMOVE EXISTING DUCTWORK | 3///// |
| $ \frac{1}{2}$ $ \frac{1}{2}$ $ -$ | MANUAL VOLUME DAMPER | + |
| — <u> </u> | MOTORIZED DAMPER | - <u>T</u> -M |
| (T) (S) | THERMOSTAT, REMOTE SENSOR | |

NGC DE COMPANIES NO TRIFES DEMMINES CHALL MOT DE RITHETED DY ANY DEDECAR FIDIA OD CODDODATION METICAL THE COPONER MOTTER DEDIFICION OF DE COMPAN



CONTRACTOR SHALL PRESSURE TEST THE REFRIGERANT PIPING WITH NITROGEN AT A PRESSURE AND TIME RECOMMENDED BY MANUFACTURER AND INDUSTRY PRACTICE TO ASSURE ALL PIPING IS FREE OF LEAKS.

1.01 SCOPE OF WORK

- A. PROVIDE ALL LABOR. MATERIAL, EQUIPMENT, AND CONTRACTOR'S SERVICES NECESSARY FOR COMPLETE, SAFE INSTALLATION OF ALL MECHANICAL WORK. THE SCOPE OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
- 1. DEMOLITION AND REMOVAL OF ITEMS AS REQUIRED.
- 2. DUCTWORK AND DUCTWORK ACCESSORIES
- 3. PIPING AND PIPING ACCESSORIES INCLUDING ALL VALVING.
- 4. EQUIPMENT (PUMPS, AIR CONDITIONING UNITS, FANS, ECT.)
- 5. INSULATION OF DUCTWORK.
- 6. AUTOMATIC TEMPERATURE CONTROLS.
- 7. CUTTING AND PATCHING.
- 8. SHOP DRAWINGS. OPERATING AND MAINTENANCE MANUALS.
- 10. FULL COORDINATION WITH OTHER TRADES.
- 11. WARRANTY AND GUARANTEE.
- 12. PREMIUM TIME FOR WORK TO BE PREFORMED AFTER-HOURS AS REQUIRED BY BUILDING MANAGEMENT AND/OR OWNER.
- 13. FILING, PERMITS, CONTROLLED INSPECTIONS.
- 14. FULL TESTING AND STARTUP OF ALL SYSTEMS.
- B. SECURE CERTIFICATES, PAY ALL FEES AND CHARGES FOR ALL WORK INSTALLED. CERTIFYING COMPLIANCE WITH ALL AUTHORITIES. CONTRACTOR TO PERFORM REQUIRED CONTROLLED INSPECTION AND OBTAIN ALL EQUIPMENT USE PERMITS. DELIVER CERTIFICATES TO OWNER FOR SIGNING BEFORE FLING.

C. COORDINATION WITH BUILDING MANAGEMENT

- 1. THIS CONTRACTOR IS TO DETERMINE REQUIREMENTS AND THE EXTENT OF PREMIUM TIME WORK REQUIRED BY BUILDING
- 2. COORDINATE WITH BUILDING OWNER FOR ANY SERVICE INTERRUPTION OF EXISTING SYSTEMS AND GIVE NOTICE AS REQUIRED BY BUILDING RILES AND REGULATIONS OR A MINIMUM OF TWO(2) DAYS PRIOR TO ANY WORK, WHICHEVER IS MORE STRINGENT. CONTRACTOR IS TO PERFORM WORK ON PREMIUM TIME, IF SO DIRECTED BY BUILDING OWNER, SO AS NOT TO DISTURB EXISTING TENANTS ON OTHER FLOORS.

1.02 GENERAL REQUIREMENTS FOR ALL MECHANICAL WORK

- 1. IT IS THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS THAT THE CONTRACTOR DOCUMENTS THAT THE CONTRACTOR SHALL PROVIDE A MECHANIC INSTALLATION THAT IS COMPLETE WITH ALL ITEMS AND APPURTENANCES NECESSARY, REASONABLY INCIDENTAL, OR CUSTOMARILY INCLUDED, EVEN THOUGH EACH AND EVERY ITEM IS NOT DETAILED ON THE DRAWINGS OF SPECIFIED.
- 2. THE TERM "PROVIDE" IN THESE SPECIFICATIONS AND ON THE DRAWINGS MEANS; FURNISH, TRANSPORT, INSTALL, CONNECT, WARRANT, AND START-UP, INCLUSIVELY.
- 3. THE INSTALLATION OF ALL SYSTEMS SHALL BE MADE BY EXPERIENCED CRAFTSMEN IN A NEAT WORKMANLIKE MANNER. ALL MATERIALS, TOOLS. PERMITS AND INSPECTIONS, AND ALL OTHER COSTS AND SERVICES NECESSARY TO PROVIDE ALL NECESSARY MECHANICAL AND ELECTRICAL ITEMS SHALL BE FURNISHED AND PAID FOR, IN FULL, BY THE CONTRACTOR.
- A. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS TO PROTECT ANY EXISTING CONSTRUCTION AND ADJACENT PROPERTY, WITH WHICH WORK COMES IN CONTACT, AND OVER WHICH HE MAY TRANSPORT, HOIST OR MOVE MATERIALS, EQUIPMENT, DEBRIS, ETC., AND SHALL REPAIR SATISFACTORILY ALL DAMAGES CAUSED BY HIM DURING CONSTRUCTION.

B. THE CONTRACTOR SHALL. AT NO COST TO THE OWNER, REPLACE WITH

- NEW MATERIALS AND/OR EQUIPMENT, ANY ITEMS FAILING TO GIVE SATISFACTORY SERVICE DURING, A 1-YEAR WRITTEN LABOR AND MATERIALS WARRANTY PERIOD TO BE INCLUDED AS PART OF THIS WORK.
- 1. FOR ALL EQUIPMENT HAVING AN EXTENDED WARRANTY AVAILABLE, THE CONTRACTOR SHALL INCLUDE THE FULL ADDITIONAL COST FOR SAME IN HIS BASE BID
- 2. ALL WARRANTY CERTIFICATES AND EXTENDED WARRANTY CERTIFICATES ISSUED FOR EQUIPMENT SHALL BE TRANSMITTED TO THE OWNER.
- C. THE CONTRACTOR SHALL COORDINATE WITH AND NOTIFY THE OWNER'S REPRESENTATIVE FOR APPROVAL AND SCHEDULING OF ANY BUILDING SYSTEM INTERRUPTIONS OR EXISTING TENANT INTERRUPTIONS (INCLUDING NOISE, DUST, ECT.) THE CONTRACTOR SHALL COORDINATE ANY EXISTING BUILDING EQUIPMENT WARRANTIES PRIOR TO MODIFICATION OR
- D. ALL EQUIPMENT SHALL BE NEW, UNLESS NOTED OTHERWISE, AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR THE SERVICE INTENDED. PROVIDE ONLY PRODUCTS BEARING UNDERWRITERS LABORATORIES (UL) LABEL AS APPLICABLE.
- 1. WHEN EXISTING ITEMS ARE TO BE REUSED, REFURBISH AS NOTED ON THE DRAWINGS OR SPECIFIED. OTHERWISE, STORE AND MAINTAIN IN THE SAME CONDITION AS EXTENDED WHEN THE WORK WAS PLACED UNDER CONTRACT. REINSTALL THE ITEM IN A GOOD WORKMANLIKE MANNER.
- E. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER OF ALL MAJOR ITEMS OF EQUIPMENT PRIOR TO PLACING ORDERS. SHOULD THE CONTRACTOR SUPPLY EQUIPMENT DIFFERING FROM THE SCHEDULED OR SPECIFIED ITEMS IN THE CONTRACT DOCUMENTS WITHOUT NOTIFICATION TO THE ENGINEER, HE SHALL BEAR ALL COST TO REMEDY ANY DEFICIENCIES ARISING FROM SAME.
- F. PROVIDE THREE COPIES OF CLEARLY MARKED SUBMITTAL DATA ON THE FOLLOWING ITEMS AND AS REQUESTED BY THE ENGINEER:

HVAC EQUIPMENT

CONNECTION TO SAME.

- G. MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE CONTRACT DOCUMENTS AND ALL CURRENT APPLICABLE CODES AND STANDARDS. SHOULD THE CONTRACTOR PROVIDE ANY ITEM OR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE CURRENT APPLICABLE CODES AND STANDARDS, HE SHALL BEAR ALL COSTS ARISING CORRECTING ANY DEFICIENCIES. CURRENT APPLICABLE CODES AND STANDARDS SHALL INCLUDE ALL ORDINANCES, UTILITY COMPANY REGULATIONS, OSHA REGULATIONS, AND APPLICABLE REQUIREMENTS OF CITY AND NATIONALLY ACCEPTED CODES AND STANDARDS.
- H. THE CONTRACTOR SHALL VISIT THE PREMISES PRIOR TO BIDDING TO THOROUGHLY FAMILIARIZE HIMSELF WITH ALL DETAILS AND COORDINATE WITH ALL EXISTING CONDITIONS TO BE ENCOUNTERED BY ALL TRADES.

- HE SHALL VERIFY ALL CONDITIONS IN THE FIELD. INCLUDE ANY COSTS RELATED TO SAME IN HIS BID, AND SHALL NOTE IN WRITING, ANY EXCEPTIONS TAKEN WHEN BIDDING THE WORK.
- THE CONTRACTOR SHALL VERIFY THE WORKING CONDITION OF ALL EXISTING EQUIPMENT TO BE RE-USED AND NOTIFY THE LANDLORD PRIOR TO THE START OF CONSTRUCTION OF ANY MISSING OR MALFUNCTIONING
- J. VERIFY ALL MEASUREMENTS. NO EXTRA COMPENSATION WILL BE ALLOWED BECAUSE OF DIFFERENCES BETWEEN WORK SHOWN ON THE DRAWINGS AND ACTUAL MEASUREMENTS AT THE SITE OF CONSTRUCTION. DO NOT SCALE THE DRAWINGS.
- K. EQUIPMENT SUBSTITUTIONS TO THE NAMED SPECIFIED PRODUCTS MAY BE PROPOSED BY THE CONTRACTOR SHALL BASE HIS BID ON THE NAMED ITEMS. THE CONTRACTOR SHALL DEMONSTRATE TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE THAT THE QUALITY, CAPACITY AND SUITABILITY OF THE PROPOSED ITEM EQUALS OR EXCEEDS THAT OR THE NAMED ITEM.
- L. COORDINATE EQUIPMENT SUBSTITUTIONS FOR THE SCHEDULED OR SPECIFIED ITEM WITH ALL OTHER TRADES, COMPENSATION TO OTHER TRADES DUE TO CHANGES IN RATED VOLTAGE, PHASE, PHYSICAL SIZE, ARRANGEMENTS, SHAPE, COLOR, AND ALL OTHER CHARACTERISTICS AND THEIR RELATED EFFECTS ARISING FROM EQUIPMENT SUBSTITUTIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR MAKING THE CHANGE.
- M. IN THE CASE WHERE TWO OR MORE TRADES OR CONTRACTORS ARE INVOLVED IN THE INSTALLATION OF ANY ITEM, ALL SUCH PERSONS SHALL BE RESPONSIBLE FOR COORDINATING THEIR WORK AMONG THEMSELVES TO PROVIDE A FULLY COMPLETED, FUNCTIONING INSTALLATION.
- N. WHETHER ITEMS SPECIFIED OR NOTED ARE DESCRIBED AS SINGULAR OR PLURAL SHALL NOT ALTER THE REQUIREMENT THAT SUFFICIENT QUANTITIES OF THE ITEM ARE TO BE PROVIDED IN ORDER TO RESULT IN A COMPLETE INSTALLATION AND PROJECT.
- O. THE DRAWINGS ARE DIAGRAMMATIC, BUT ARE REQUIRED TO BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT, DATA INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS ARE AS EXACT AS COULD BE SECURED, BUT THEIR ABSOLUTE ACCURACY IS NOT WARRANTED. BRANCH CIRCUITS, PIPING ARRANGEMENTS, AND MECHANICAL AND ELECTRICAL COMPONENT LOCATION AND LIKE HAVE BEEN DESIGNED FOR ECONOMY CONSISTENT WITH GOOD PRACTICE AND OTHER CONSIDERATIONS. MAJOR CHANGES TO THE SYSTEMS ARRANGED AS SHOWN ON THE DRAWINGS, IF ACCEPTED, MUST BE APPROVED IN WRITING BY THE ENGINEER, PRIOR TO PROCEEDING. ALL SUCH CHANGES SHALL BE INCORPORATED INTO THE "AS-BUILT" DRAWINGS AS SPECIFIED.

P. TESTING AND INSPECTION:

- 1. PROVIDE PERSONNEL AND EQUIPMENT, MAKE REQUIRED TESTS, AND SECURE REQUIRED APPROVALS FROM THE ARCHITECT AND GOVERNMENTAL AGENCIES HAVING JURISDICTION.
- 2. MAKE WRITTEN NOTICE TO THE ENGINEERS ADEQUATELY IN ADVANCE OF EACH OF THESE:
- 2.1. WHEN ROUGH-INS ARE COMPLETE, BUT NOT COVERED.
- 2.2. AT COMPLETION OF THE WORK.
- 3. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND TO NOT COMPLY WITH THE SPECIFIED REQUIREMENTS: WITHIN THREE DAYS AFTER RECEIPT OF NOTICE OF SUCH NON-COMPLIANCE, REMOVE THE NON-COMLYING ITEMS FROM THE JOB SITE AND REPLACE THEM WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS, ALL AT NO ADDITIONAL COST TO THE
- 4. IN THE ENGINEERS PRESENCE:
- 4.1. TEST ALL PARTS OF ALL SYSTEMS AND DEMONSTRATE THAT ALL SUCH ITEMS PROVIDED UNDER THIS SECTION FUNCTION IN THE REQUIRED MANNER.
- Q. UPON COMPLETION OF THE WORK, THOROUGHLY CLEAN ALL EXPOSED PORTIONS OF THE MECHANICAL AND ELECTRICAL EQUIPMENT PROVIDED AND THE GENERAL AREA WHERE WORK WAS PREFORMED. REMOVE ALL TRACES OF SOIL, LABELS, GRADE, OIL, AND OTHER FOREIGN MATERIAL USING ONLY THE TYPE CLEANER RECOMMENDED BY THE MANUFACTURER OF ANY ITEM BEING CLEANED.
- R. UPON COMPLETION, PROVIDE MANUFACTURERS' OPERATING AND MAINTENANCE INSTRUCTIONS TO THE OWNER'S REPRESENTATIVE FOR ALL MAJOR MECHANICAL EQUIPMENT PROVIDED. PROVIDE ONE HOUR OF FORMAL TRAINING TO OWNER'S PERSONNEL.
- S. CONTRACTOR SHALL DESIGNATE ONE PERSON TO SERVE AS SOLE POINT OF COMMUNICATION WITH OWNER OR ENGINEER.
- T. WORK AMONG ALL TRADES SHALL BE FULLY COORDINATED AS REQUIRED IN THE FIELD TO AVOID SPACE CONFLICTS AND INTERRUPTION OF THE FLOW OF WORK
- U. IN THE EVENT THAT ANY ITEM PROVIDED UNDER THIS CONTRACT IS DAMAGED PRIOR TO FINAL ACCEPTANCE THE CONTRACTOR SHALL REPLACE, NOT REPAIR, THE ITEM WITH NEW. IF AN EXISTING ITEM IS DAMAGED DURING THE CONSTRUCTION, THE CONTRACTOR SHALL RESTORE THE ITEM TO NEAR ORIGINAL CONDITION AND PRIOR OPERATING CONDITION TO THE SATISFACTION OF THE OWNERS REPRESENTATIVE
- V. CONTRACTOR SHALL PROVIDE ALL DIMENSIONS FOR BLOCK OUTS, SLEEVES, ECT., AND THE DIMENSIONED LOCATIONS OF SAME.
- W. MAINTAIN MINIMUM CLEARANCE FOR LIGHTS OF 7" ABOVE FINISHED CEILING AND 1" MINIMUM BELOW ALL DUCTS, PIPES, CONDUIT, OR ANY OTHER EQUIPMENT IN THE CEILING SPACE. MAINTAIN MANUFACTURER'S RECOMMENDED SERVICE ACCESS CLEARANCE AT ALL EQUIPMENT.
- X. PROVIDE ALL MATERIALS REQUIRED FOR THE SUPPORT OF SUCH ITEMS AS PIPING, DUCTS, EQUIPMENT, AND SIMILAR ITEMS. THIS SHALL INCLUDE RODS, ANGLES, ECT., TO PROPERLY SUPPORT ALL ITEMS IN A PROPER AND SAFE MANNER.
- Y. SUITABLE FLASHINGS FOR OPENINGS IN THE BUILDING WALLS, OR FLOOR OR ROOF SHALL BE FURNISHED BY THE CONTRACTOR PROVIDING THE PENETRATING ITEM. THE INSTALLATION OF THE FLASHING AND ITS WATERTIGHT INTEGRITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR THAT PROVIDES THE SEALING AND FINISHING OF THE FLASHING, IN ALL CASES, THE FLASHING MATERIAL AND ITS INSTALLATION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. FLASHINGS FOR PENETRATIONS MAY ALSO BE PROVIDED ENTIRELY BY THE GENERAL CONTRACTOR. ALSO, REFER TO THE ARCHITECTS SPECIFICATIONS TO COORDINATE THE COMPLETENESS OF THIS ITEM.
- Z. NO OPENINGS IN THE ROOF SHALL BE MADE ABOVE ANY DATA ROOM EQUIPMENT.
- AA.PROPERLY SUPPORT ALL EQUIPMENT AND PIPING WITHIN THE BUILDING AND PROVIDE ADEQUATE PROVISIONS FOR SLOPE AND ANCHORAGE. CONTRACTOR SHALL USE HANGER'S RODS, INSERT, ETC., LISTED BY UNDERWRITERS' LABORATORIES FOR THE SERVICE INTENDED. HANGERS

- FOR COPPER PIPING SHALL BE COPPER PLATED. SECURELY SUPPORT ALL EQUIPMENT FROM STRUCTURAL MEMBERS PROVIDED AS NEEDED, WHICH IN TURN ARE TO BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE. ALL HANGERS SHALL HAVE A MINIMUM FACTOR OF SAFETY
- AB.IN THE EVENT OF A CONFLICT WITHIN THE DRAWINGS AND/OR SPECIFICATIONS, PROVIDE THE GREATER QUANTITY OR HIGHER QUALITY.
- AC.DOCUMENTATION OF ANY TEST AND "AS-BUILT" RECORD DRAWINGS SHALL BE PROVIDE TO THE BUILDING OWNER UPON COMPLETION.

1.03 MECHANICAL SPECIFICATIONS

- A. ALL MECHANICAL EQUIPMENT SHALL BE OF THE BRAND, CAPACITY, AND QUALITY AS SCHEDULED OR APPROVED EQUAL INSTALL ALL EQUIPMENT AS RECOMMENDED BY EACH MANUFACTURER.
- 1. PROVIDE HVAC EQUIPMENT AS MANUFACTURED BY:
- 1.2. LIEBERT
- B. WORK INCLUDES BUT IS NOT NECESSARILY LIMITED TO:
- 1. DEMOLITION OF EXISTING EQUIPMENT, DUCTWORK, AND PIPING
- 2. HVAC EQUIPMENT
- 3. DUCTWORK, GRILLES, AND ALL ACCESSORIES

4. PIPING SYSTEMS

- 5. PLUMBING EQUIPMENT AND PIPING
- 6. INSULATION
- 7. CONTROLS
- C. PROVIDE DIELECTRIC UNION WHEREVER DISSIMILAR METALS ARE JOINED.
- D. ALL WATER SERVICE VALVES SHALL BE BALL VALVE TYPE ONLY, RATED FOR 200 PSIG WOG.
- E. INSULATE ALL CONDENSATE PIPING WITH 1/2" THICK OWENS CORNING FIBERGLASS ASJ SSL-II OR APPROVED EQUAL, SEALED TO PREVENT SWEATING AND CONTINUOUS THROUGH WALLS, FLOOR, CEILING, AND AT HANGERS PROVIDE BLOCKS AND INSULATION SHIELDS TO PREVENT CRUSHING OF INSULATION AT HANGERS.
- 1. CLOSED CELL INSULATIONS RATED 25/50 MAY BE SUBSTITUTED IN EQUIVALENT THICKNESS, FOR FIBERGLASS INSULATION, ARMAFLEX, OR APPROVED EQUAL.
- 2. PROVIDE ALL INSULATION AND JACKET MATERIALS SPECIFICALLY APPROVED FOR AIR PLENUM USE WHERE EXPOSED TO PLENUM AIR.
- REFRIGERANT SUCTION PIPING INSULATION SHALL BE 1/2" THICK WALL CLOSED CELL TYPE, FULLY SEALED. FOR SEALING, DUCT TAPE IS PROHIBITED; USE APPROVED ADHESIVE. PROVIDE SHEET METAL SHIELDS AT HANGERS AND BRACKETS.
- G. DUCTWORK SHALL BE SHEET METAL CONSTRUCTED AND SEALED ACCORDING TO SMACNA STANDARDS FOR 2" W.C. POSITIVE AND NEGATIVE PRESSURE. . REFER TO DUCTWORK LEGEND AND DUCT DETAILS ON DRAWINGS FOR DUCTWORK, FITTINGS, VANES, DAMPERS, ETC.
- . INSULATE OUTSIDE AIR DUCTWORK WITH 2" FOIL FACED EXTERNAL INSULATION (INSTALLED R VALUE = 5.0). DUCT SIZES SHOWN ARE AIRSTREAM DIMENSIONS. SEAL ALL INSULATION SEAM VAPOR TIGHT.
- I. FLOW BALANCING OF ALL SYSTEMS PROVIDED SHALL BE INCLUDED UNDER THIS CONTRACT BALANCE AIR FLOW AT ALL AIR DEVICES TO ±10% OF VALUE SHOWN ON DRAWINGS, PROVIDE WRITTEN BALANCE RFPORT
- J. PROVIDE ADHESIVE TYPE MARKERS EACH 10' THAT INDICATE BOTH DIRECTION AND PIPE CONTENT.
- K. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL CONTROLS THAT WILL COMPLETELY ACCOMPLISH THE IMPLIED OR INTENDED FUNCTION OF THE CONTROL SYSTEM AS SHOWN OR INDICATED. CONTROL PIPING MAY BE POLYETHYLENE TUBING WHEN NOT CONCEALED IN WALLS TUBING SHALL BE PLENUM RATED WHERE EXPOSED TO PLENUM AIR. ELECTRIC AND ELECTRONIC CONTROLS SHALL BE INSTALLED COMPLETE WITH REQUIRED POWER CIRCUIT, POWER SUPPLIES CABLING, ACCESSORIES, AND ENCLOSURES.
- L. ALL EQUIPMENT HAVING A REFRIGERANT MOTOR-COMPRESSOR PROVIDED ON THIS PROJECT SHALL BE PROVIDED WITH AN EXTENDED FIVE (5) YEAR COMPRESSOR WARRANTY.

1.04 ELECTRIC WIRING:

- 1. ALL ELECTRICAL WORK (EXCEPT FOR MOTOR FEEDERS, WIRING BETWEEN MOTORS, MOTOR CONTROLLERS, FEEDER PANELS, FUSES, CIRCUIT BREAKERS, AND BUS BARS) REQUIRED FOR THE AUTOMATIC TEMPERATURE CONTROL SYSTEM SHALL BE PROVIDED BY THIS CONTRACTOR. WORK SHALL INCLUDE BUT NOT BE LIMITED TO TIME SWITCHES, DAMPER MOTORS, DAMPER SWITCHES, ELECTRIC THERMOSTATS, ELECTRIC RELAYS, E/P SWITCHES, INTERLOCKING WIRING, WIRE, CONDUIT,
- 2. ALL LINE VOLTAGE POWER REQUIRED SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- 3. FURNISH A CERTIFICATE INDICATING METHOD OF WIRING COMPLIANCE WITH LOCAL CODES AS PART OF FIRST SHOP DRAWING SUBMITTAL.

Companies

ARCHITECTURE **ENGINEERING ENVIRONMENTAL** LAND SURVEYING

355 Research Parkway Meriden, CT 06450 (203) 630-1406

(203) 630-2615 Fax



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Checked AS NOTED

03/11/2016 M16D3039-00 MECHANICAL

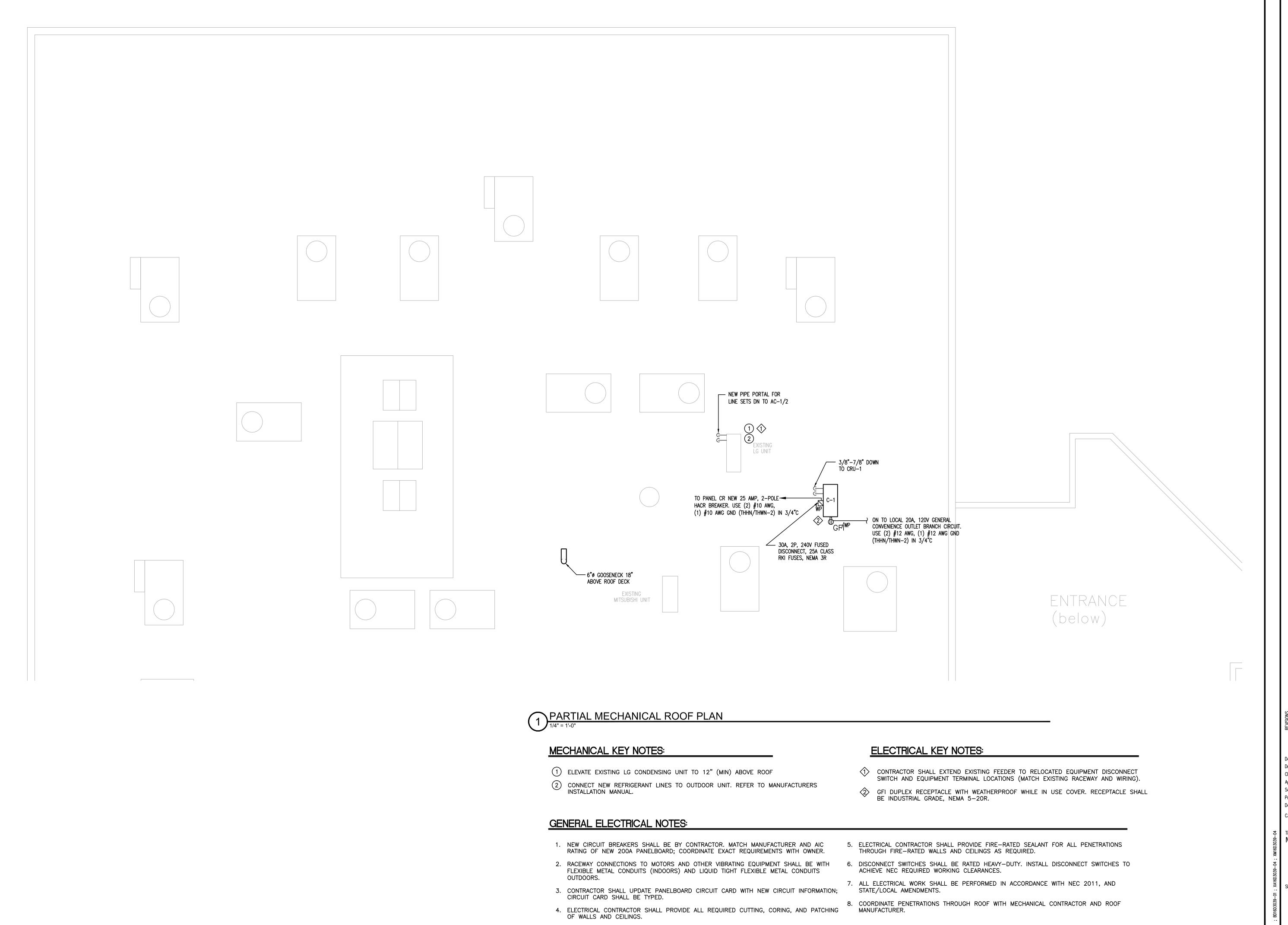
16D3039

SYMBOLS, LEGENDS AND SCHEDULES

SPECIFICATIONS.

Project No.

\ROOF MOUNTED CONDENSING UNIT DETAIL



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LAND SURVEYING

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RVER ROOM HVAC 2750 DIXWELL AVENUE

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AS NOTED 16D3039 03/11/2016 M16D3039-301

MECHANICAL PLAN

Sheet No.

M3.01